

# CHINA'S AEROSPACE POWER TRAJECTORY IN THE NEAR SEAS

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*In order to defend the security of the national territory, marine territories and the waters within the First Island Chain, this proactive defense strategy does not mean that our navy only stays within the First Island Chain.*

REAR ADMIRAL ZHANG ZHAOZHANG, APRIL 2009

Air and aerospace power has been fundamental for defending China's "near seas"—encompassing the Bohai Gulf, the Yellow Sea, and the East and South China Seas—since the founding of the People's Republic.<sup>1</sup> While air and naval operations did not play a significant role in the Chinese Civil War, which was won by the People's Liberation Army (PLA), the victorious Communist forces were threatened immediately by hostile air and naval forces from the maritime sphere. In 1949 the regime was ill equipped to defend its eleven thousand miles of coastline and more than six thousand islands against attacks and harassment

from Nationalist Chinese air and naval forces occupying the large islands of Taiwan and Hainan, as well as several smaller islands, let alone protect the People's Republic of China (PRC) against the aircraft carriers of the powerful U.S. Seventh Fleet. Even before the People's Republic was officially declared in October 1949, communist leaders immediately recognized the need for strong naval and air forces; the PLA's commander, General Zhu De, stated in April 1949 that China "must build its own air forces and navy in order to boost national defense."<sup>2</sup> This need became apparent shortly thereafter, in June 1949, when the Kuomintang (KMT) government on Taiwan declared a blockade of coastal mainland ports and its naval and air forces began attacking coastal shipping and ports as well as laying mines in river estuaries.<sup>3</sup>

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Over the course of the 1950s the PLA achieved only mixed success in protecting China's coastline. In 1949 Communist forces captured Hainan Island, the second-largest KMT-held island, and most of the smaller offshore islands fell in the early 1950s. The PLA was also successful in stopping raids on the mainland and its merchant and fishing fleets. However, KMT forces stubbornly held on to Jinmen and Matsu, as well as a few additional islands such as Taiping (Itu Aba) in the South China Sea. Also, the PLA never represented a serious invasion threat to Taiwan—an issue that persists to this day. Further, throughout the 1950s the PLA naval and air forces were impotent against powerful U.S. forces operating in China's near seas, as evidenced by the Seventh Fleet's role in resupplying Jinmen in 1954–55, evacuating KMT troops and civilians from the Dachen Islands in 1955, and escorting KMT vessels resupplying Nationalist-held offshore islands in 1958.<sup>4</sup>

Despite a clear need to defend China's near seas, resource constraints in those years meant that coastal defense represented the extent of the operational capacity of the PLA's sea and air forces. The overall emphasis of the PLA Navy (PLAN) on coastal defense as opposed to longer-range operations was evidenced by the deployment of thirteen coastal-defense artillery regiments in 1951, the primary focus of naval aviation on air defense of fleet bases, and the disbanding of the PLAN marines in 1957, only three years after the force was established.<sup>5</sup> While PLAN aviation and aircraft of the PLA Air Force (PLAAF) flew several hundred sorties during the campaigns of the 1950s, they were primarily relegated to coastal air defense and operated under restrictive rules of engagement. On a positive note for the PRC, the 1950s ended with the KMT air force no longer operating at will over Fujian and Guangdong Provinces, due to a permanent presence of PLAAF and PLAN aviation along China's eastern and southern coastlines.<sup>6</sup> Overall though, while China's air forces demonstrated the capacity to defend Chinese airspace against KMT aircraft, they could do little to counter U.S. air and naval operations in China's near seas, as demonstrated by the Seventh Fleet's operations in and around the Taiwan Strait in the 1950s and the freewheeling nature of U.S. Navy and Air Force air support to United Nations forces during the Korean War.<sup>7</sup>

Throughout the 1960s and 1970s PLA air forces continued to emphasize coastal air defense and possessed little ability to exert influence in China's near seas. The KMT air force on Taiwan continued to fly reconnaissance missions over the mainland. (Several of these aircraft were shot down; in addition, PLAN fighters based on Hainan shot down a small number of U.S. Navy and Air Force fighters that strayed too close to Chinese airspace during the Vietnam War.)<sup>8</sup> However, some PLA combat operations in the 1970s called for China's air forces to push beyond the coastal-air-defense paradigm. In 1974, PLAN fighter aircraft flew thirty-eight sorties in support of operations to seize the Paracel Islands from South Vietnam, a mission that to this day represents the longest-distance opposed landing

executed by the PLA. Further, in the 1979 border conflict with Vietnam, PLAN aircraft flew 751 sorties in support of fleet units off Vietnam's coast, although no information is available regarding the types of missions flown.<sup>9</sup>

### THE DEVELOPMENT OF NEAR SEAS DEFENSE

The need for China's air forces to push their operations farther out over water gained significance in the 1980s as China's naval strategy changed under the leadership of a dynamic commander. In 1982, new PLAN commander Admiral Liu Huaqing, building on developments of the 1970s, directed the Naval Research Institute to develop a regional naval strategy that was to become known as "Near Seas Defense" (more commonly, "offshore defense"), a strategy that would move the PLAN beyond coastal defense.<sup>10</sup> Like all other PLAN commanders prior to 1996 Admiral Liu had been originally an army officer, but—notably, in a military often dominated by the "great infantry" concept—he was more than just an infantryman serving in a naval billet. Liu proved to be an aggressive and forward-thinking maritime strategist, and by developing the strategy of Near Seas Defense and pushing for continued modernization he laid much of the intellectual and technical foundation of the PLAN of the early twenty-first century.<sup>11</sup>

Near Seas Defense has been characterized in a number of ways and is often generically described as referring to operations within China's two-hundred-nautical-mile exclusive economic zone. Admiral Liu, however, defined it as operations around and outside the "First Island Chain" (running from Japan to Taiwan and the Philippines), along with the Yellow Sea, East China Sea, South China Sea, and the islands in the latter—a zone that he considered inherently Chinese territory.<sup>12</sup> Liu further defined Near Seas Defense as a regional, defensive strategy specific to China's maritime claims and interests, and he did not advocate replicating U.S. or Soviet global naval capabilities. Instead, he made comparisons to the 1980s-era naval strategies of Great Britain, France, Germany, Italy, and Japan. Liu forcefully objected to the epithet "China's Mahan" that some were giving him, arguing that Alfred Thayer Mahan had developed naval strategies to serve the expansionist needs of imperialists and capitalists, whereas his strategic goals were to defend China from aggression and protect its legitimate maritime rights.<sup>13</sup>

While such talk may make for fine rhetoric, Liu's articulation of offshore defense is in fact far closer to what Mahan advocated for the United States than most realize. Two U.S. Naval War College scholars state, "Close study will reveal that Mahan never counseled naval war for its own sake. Far from espousing an open-ended American naval buildup, he urged the U.S. Navy to assume the strategic defensive in vital waters, chiefly the Caribbean Sea and the Gulf of Mexico, expanses that would provide America its 'gateway to the Pacific' once the Panama Canal opened."<sup>14</sup>

Just as Mahan argued that the control of the Caribbean Sea and Gulf of Mexico was essential to promoting America's development and defending maritime commerce and that the Caribbean was the strategic key to U.S. maritime frontiers on the Atlantic and Pacific Oceans, Liu discussed the importance of the Yellow Sea, East China Sea, and South China Sea as resource-rich and protective screens to sustain and shield China's development.<sup>15</sup> Mahan viewed key geographic points such as Cuba and Jamaica as essential for controlling access to the Caribbean and thus the soon-to-be-completed Panama Canal. Similarly, the strategy of offshore defense is concerned with the strategic importance of the Spratly Islands in the South China Sea owing to their location along strategic sea-lanes linking China to the Pacific and Indian Oceans, as well as to their overall importance in protecting the South China Sea, which Liu called "the southern gate of our motherland."<sup>16</sup> Additionally, while Liu wrote about Taiwan in terms of reunifying it with the homeland, subsequent Chinese strategists discuss Taiwan much as Mahan discussed islands like Cuba, Jamaica, and Hawaii—as keys to controlling maritime communications and protecting maritime interests or, if in the hands of foreign power, as barriers threatening trade and development.<sup>17</sup>

However, for all of Admiral Liu's strategic vision, he had to contend with something Mahan had not and for which Mahan's writings offered no useful insight—the dominance of airpower in the maritime battle space. When the strategy of Near Seas Defense was first put in place in 1987, the PLAN's lack of credible air defense for its surface ships and the obsolescence and short range of the fighter aircraft of both the PLAAF and PLAN meant that the latter could in fact do little to protect China's near seas against a serious opponent.<sup>18</sup> Beyond air defense in China's near seas, a lack of long-range precision-strike capability within the PLAN, PLAAF, and China's missile force, the Second Artillery, meant that China's military could do little in terms of offensive operations against enemy air and naval forces during a conflict on the nation's maritime periphery.

As the 1980s gave way to the 1990s, the need for the PLAN to be able to execute a near-seas defensive strategy became crystal clear. The collapse of the Soviet Union eliminated a large-scale threat that China's Central Military Commission had correctly recognized in 1985 was already diminishing. Operation DESERT STORM and subsequent U.S.-led operations against Iraq and in the Balkans throughout the 1990s demonstrated the effectiveness of long-range precision-strike technology. It became clear to PRC leaders that an enemy equipped with such weaponry could launch it against China's densely populated and economically vibrant coastal provinces from air and sea-based platforms outside the range of defenses. Further, the Taiwan Strait crisis of 1996—in which the United States deployed two aircraft carrier groups near Taiwan as a show of support against PRC missile-firing exercises intended to intimidate the island during its

first democratic elections—served as a harsh lesson to PRC leaders regarding their nation’s vulnerability against a first-class military.<sup>19</sup> The 1996 crisis with Taiwan, along with U.S.-led air strikes in the Balkans in response to Serbian human-rights violations, also conveyed to Beijing that Washington was willing and able to interfere in the internal affairs of other nations, further heightening concerns in the PRC that it was vulnerable to U.S. military coercion. Modernization of both Japan’s and Taiwan’s navies and air forces, tensions on the Korean Peninsula, and China’s increased integration with the global economy (the nation became a net importer of oil in 1993) contributed to Beijing’s growing maritime security dilemma.<sup>20</sup> All this made Liu Huaqing’s calls in the early 1980s for a navy capable of establishing command of the near seas seem prophetic indeed. The need for a modern navy capable of waging high-tech war to protect China’s maritime periphery took on added urgency.<sup>21</sup> Concurrent with that need was a requirement for modern aerospace forces capable of projecting power into the near seas in order to cover Chinese naval forces, deny those areas to enemy aviation, and hold at risk enemy air and naval forces and logistics bases.

#### THE DEVELOPMENT OF COUNTERSTRIKE DOCTRINE FOR NEAR SEAS DEFENSE

In terms of potential conflicts in China’s near seas, a Taiwan contingency is the foremost issue on the minds of many strategists on both sides of the Pacific Ocean. While China has developed the capability to conduct robust firepower-strike and blockade operations against Taiwan, the PLA does not now possess the ability to invade Taiwan. Therefore, in a time of crisis the overall goal for China would be to deter Taiwan from moving toward a formal declaration of independence while reserving the capability to punish Taiwan severely should it issue such a declaration and to prevent the United States, by threatening U.S. forces and bases throughout the western Pacific, from intervening on the island’s behalf.<sup>22</sup> However, the focus on developing multimission platforms and weapons that can execute large-scale coercive and punishment operations against Taiwan is quietly evolving the PLA as a whole. It is becoming a balanced and flexible force capable of missions across the spectrum of military operations, including such nonwar operations as the ongoing counterpiracy deployment to the Gulf of Aden or the recent flood-relief operations in Pakistan. Additionally, the counterstrike capabilities that the PLA is developing to deter or defeat U.S. intervention in a Taiwan scenario would be just as useful for countering intervention in other contingencies in China’s near seas. Recent statements by high-level American officials regarding American interests in the South and East China Seas and the inflammatory Chinese rhetoric over the November 2010 participation of the aircraft carrier *USS George Washington* (CVN 73) in exercises in the Yellow Sea

point to other potential areas of tension between Beijing and Washington in the western Pacific.<sup>23</sup>

Over the past two decades the PLA has, in order to execute China's Near Seas Defense strategy, pursued a counterstrike doctrine designed to take the fight to an enemy attempting to intervene in a regional conflict. Its operational element is known as "noncontact warfare." Sometimes incorrectly characterized as a "Sun Tzu-esque" method of winning without fighting, noncontact warfare is in fact the employment of long-range precision-strike systems from outside an enemy's defended zone against key nodes across the enemy's strategic and operational depth.<sup>24</sup> A standard 2005 work, *Science of Military Strategy*, discusses at length the need to conduct standoff attacks against key points and centers of gravity. Primary targets include command-and-control systems and logistics facilities. In fact, *Science of Military Strategy* holds that an enemy's primary combat forces should be attacked only after the destruction of information and logistics assets, because the combat effectiveness of the main operational forces will thus have been significantly weakened. The goal is not the wholesale destruction of an enemy's forces but their paralysis. The book draws analogies to the destruction of a body's brain and central nervous system.<sup>25</sup> For American planners, the relevant aspect of this line of thought is that in a conflict between the United States and China in East Asia, the first American targets the PLA goes after may not be carrier strike groups or the runways and parking aprons at Kadena Air Base on Okinawa. Instead, the PLA may choose first to attack the replenishment vessels that supply the strike groups at sea, as well as land-based logistics and command-and-control facilities. A December 2005 article in PLAN newspaper 人民海军 (*People's Navy*) pointed to the need for constant at-sea replenishment as one of the primary weaknesses of U.S. carrier strike groups.<sup>26</sup> With regard to broader counterstrike operations, the air bases that receive the most attention from the PLA in the early stages of a conflict are likely to be those where the United States bases such assets as airborne tankers and command-and-control aircraft.

The PLA's counterstrike doctrine is not particularly new. Airpower theorists have been claiming since the 1920s that strategic strikes against key targets can paralyze an enemy's war effort. In fact, the best articulation of the PLA's counterstrike doctrine can be found not in any book or article in Chinese but in a 1995 article by Colonel John Warden of the U.S. Air Force (now retired), "The Enemy as a System." Warden, one of the architects of the U.S.-led coalition's air campaign in DESERT STORM, presents a five-ring model, where the rings represent, from the inside out, a potential enemy's "leadership," "organic essentials" (such as electricity), "key infrastructure," "population," and "fielded forces." In terms similar to those used by the Chinese, Warden describes a properly executed air campaign as one that involves attacks against key targets to induce strategic and operational

paralysis, making engagements with an enemy's military forces either unnecessary or at least a virtually foregone conclusion.<sup>27</sup> Not surprisingly, Warden's views on airpower are known to the Chinese. Noted PLAAF general and military commentator Liu Yazhou calls Warden the "Douhet of our time," and the five-ring model receives prominent mention in the book *Air Raid and Anti-Air Raid in the 21st Century* (2002).<sup>28</sup>

The notion of inflicting strategic and operational paralysis through long-range, precision air and missile strikes is controversial to say the least, and the issue will not be debated here. For now it is sufficient to say that the PLA has developed and is refining a counterstrike doctrine based on classic airpower theory and applied through a growing array of precision-strike weapons. Operationally, this doctrine flows from the strategic framework articulated in the *Science of Military Strategy*. In turn, *Air Raid and Anti-Air Raid* calls for organizing counterstrike forces under a "counterattack operations group." The forces assigned to, or at least coordinated by, this body include the fighter and attack-aviation forces of the PLAAF and PLAN, conventional ballistic- and cruise-missile units, attack helicopters, surface ships, submarines, and special-operations forces.<sup>29</sup> Key targets include command-and-control systems, logistics, air bases, aircraft carriers, and missile launchers. As for aerospace forces, the books *Air Raid and Anti-Air Raid* (already mentioned), *Study on Joint Firepower Warfare Theory* (2004), and a 2006 National Defense University version of *Science of Campaigns* detail missile and air counterattack against command-and-control systems, air bases, air defenses, and logistics facilities, with an emphasis on large, fixed targets. Command-and-control systems are specifically called out as important targets for missile and air strikes, being nerve centers and force multipliers for enemy forces. Missile counterattacks are to be launched first, in order to create favorable conditions for air counterattacks meant to reinforce the effects of long-range missile strikes.<sup>30</sup> Additionally, naval-aviation fighter and bomber forces are tasked to perform counterstrike operations against enemy ships, while also providing air cover to PLAN forces at sea.<sup>31</sup> When coordinated strikes are not possible because enemy aircraft carriers and air forces are out of range, the authoritative *Science of Second Artillery Campaigns* highlights the importance of long-range conventional missiles in strikes against bases and carrier groups.<sup>32</sup>

## THE MODERNIZATION OF THE PLA'S COUNTERSTRIKE AEROSPACE FORCES

In order to defend China's near seas and execute this ambitious counterstrike doctrine, the PLA has invested a great deal over the past two decades in modernizing the counterstrike capabilities of the PLAN, PLAAF, and Second Artillery. The result has been an impressive array of short- and medium-range conventional



ballistic missiles, ground- and air-launched cruise missiles, precision-guided land-attack munitions and the combat aircraft necessary to employ them, and highly capable antiship cruise missiles that can be fired from surface ships, submarines, maritime strike aircraft, and shore-based launchers. The Second Artillery is fielding the DF-21D (based on the CSS-5 airframe), a medium-range ballistic missile specifically designed to target U.S. aircraft carriers at sea.<sup>33</sup> While the PLA is not as capable across the board as the U.S. military, its concentration on specific counterstrike capabilities has enabled it to develop pockets of excellence in such areas as conventional ballistic missiles, submarines, antiship cruise missiles, and electronic warfare. As a result, the PLA is in a position to impose a high-risk calculus on opposing forces in the western Pacific in times of tension or war, particularly as they approach China's near seas.<sup>34</sup>

With regard to counterstrike aviation in the PLAN, the past decade has seen a transition from a primary concern with coastal air defense to a modern maritime-strike force. In the 1990s the PLAN took delivery of only a small number of early models of the J-8II interceptor and JH-7 maritime-strike aircraft. Today, through acquisition of new blocks of these airframes and upgrades to older systems, the PLAN fields five regiments of the JH-7/JH-7A and two regiments of the J-8II. It also operates one regiment of modern Russian-built Su-30MK2 Flanker multirole, maritime-strike fighters and is taking delivery of modern indigenous J-10 and J-11B (Chinese-built Flanker) fighter aircraft.<sup>35</sup> The JH-7/JH-7A, the PLAN's workhorse maritime-strike fighter, has evolved into a highly capable two-seat aircraft capable of employing the YJ-83K antiship cruise missile and advanced electronic-warfare systems. Complementing the JH-7/JH-7A units, the Su-30MK2 regiment can employ antiship and antiradiation variants of the Russian-made Kh-31 air-to-surface missile.<sup>36</sup> The J-8II, although based on an older design, can now employ, thanks to radar and avionics upgrades, modern beyond-visual-range air-to-air missiles; its range can be extended by refueling from the PLAN's small inventory of H-6 tanker aircraft.<sup>37</sup> Additionally, once fully operational, the J-11B and J-10 will combine with the Su-30MK2s to give the PLAN an ability to extend air defense to Chinese task groups beyond coastal waters. Complementing the PLAN's inventory of fighters and strike fighters are two regiments of H-6 maritime strike bombers (based on the Soviet Tu-16 of the 1950s but upgraded to employ modern antiship cruise missiles) and a single regiment of J-7E short-range interceptors.<sup>38</sup>

While not a global expeditionary force, PLAN strike aviation is a modern regional force that is in theory capable of covering, from its bases on the Chinese mainland, the near-seas defense areas defined by Liu Huaqing, including operations beyond the First Island Chain.<sup>39</sup> However, it should be noted that this arsenal of modern maritime strike fighters is at least somewhat constrained



by the well trained and equipped U.S. and Japanese air forces based on China's maritime periphery.

The Second Artillery is arguably the primary arm of the PLA that is tasked with counterstrike operations in China's near seas. The 2008 white paper on China's national defense states, "The conventional missile force of the Second Artillery Force is charged mainly with the task of conducting medium- and long-range precision strikes against key strategic and operational targets of the enemy."<sup>40</sup> According to the U.S. Department of Defense, as of late 2009 the Second Artillery had deployed over a thousand CSS-6 (six-hundred-kilometer) and CSS-7 (three-hundred-kilometer) short-range ballistic missiles within range of Taiwan, including a growing number with precision-strike capability. Additionally, the Second Artillery reportedly possesses up to a hundred CSS-5 (1,750-kilometer) medium-range ballistic missiles—the number is increasing—and up to five hundred DH-10 (1,500-kilometer) ground-launched cruise missiles. While the shorter-range ballistic missiles can only hit a limited target set beyond Taiwan, the growing number of conventionally armed and precision-strike-capable CSS-5s and DH-10s demonstrates the PLA's desire to be able to extend its counterstrike options throughout China's near seas.<sup>41</sup>

In addition, the Second Artillery, with the development of the DF-21D, now has a maritime mission against U.S. carrier strike groups. This system, under development for several years, is now operational, according to Admiral Robert F. Willard, former commander of U.S. Pacific Command.<sup>42</sup> A Second Artillery role in maritime strike was documented in PLA counterstrike doctrine almost a decade ago. *Air Raid and Anti-Air Raid* (2002) discusses the use of ballistic missiles in "surprise attacks at sea," and a February 2005 article in the journal 舰船知识 (*Naval and Merchant Ships*), "Nemesis of Aircraft Carriers," concluded that precision-guided ballistic missiles represented the best solution for overcoming an aircraft carrier's layered defenses.<sup>43</sup> The 2004 *Study on Joint Firepower Warfare Theory* stated that land-based-missile forces and naval forces should integrate high- and low-altitude missile attacks against aircraft carriers at sea and called for attacks on carriers in port.<sup>44</sup>

The PLAAF too plays an important role in counterstrike operations in China's near seas. Over the past decade the PLAAF has grown from a force primarily concerned with short-range air defense of the homeland to one capable of extending China's air-defense envelope over the water and, increasingly, of conducting long-range precision-strike missions.<sup>45</sup> A growing portion of the PLAAF comprises modern fighter aircraft like the imported Su-27 Flanker and the indigenous J-11B Flanker, the J-10, and (in upgraded variants) the J-8II. Additionally, the PLAAF employs the multirole Su-30MKK Flanker imported from Russia and several regiments of the JH-7A strike fighters, equipped with the

KD-88 land-attack cruise missile.<sup>46</sup> The PLAAF is upgrading its H-6 bombers to employ the YJ-63 and DH-10 land-attack cruise missiles. A significant part of this effort is the development of the H-6K, a new extended-range variant of the H-6 that when combined with the long-range DH-10 will be able to threaten U.S. bases, such as Guam, in the Second Island Chain.<sup>47</sup> As the PLAAF's inventory of long-range aircraft armed with standoff missiles grows, its capacity to expand the counterstrike envelope of China's Near Seas Defense strategy will expand as well.

### AIRCRAFT CARRIERS

Another key element of China's maritime aerospace power trajectory is the PLAN's aircraft carrier program. The PLAN has refitted and modernized the Cold War-era Russian *Kuznetsov*-class carrier *Varyag* at Dalian shipyard; sea trials began in August 2011. The ship's air group is also taking shape. The PLAN's developmental carrier fighter is a domestically produced carrier-capable variant of the Russian-designed Su-27 Flanker known as the J-15.<sup>48</sup> Although the aircraft is still just a prototype and little is known about the program, it is reasonable to assume that the J-15 will possess the same radar, avionics suite, and weapons capabilities as the land-based J-11B.<sup>49</sup>

The former *Varyag* is equipped for ski-jump launch, and there is a strong possibility that at least the first domestically produced carrier will be likewise. Accordingly, in addition to the J-15, the PLAN is procuring and developing rotary-wing airborne-early-warning (AEW) platforms. According to Russian press and Internet reporting, China is taking delivery of up to nine Ka-31 AEW helicopters, and Internet photographs indicate it has fielded a prototype of an AEW variant of the Z-8 medium-lift helicopter.<sup>50</sup> At this writing it is unknown which will be chosen as the primary AEW helicopter for the PLAN's aircraft carrier force. It is possible the PLAN sees an indigenous platform based on the Z-8 as a long-term solution, with Ka-31s imported from Russia to serve as gap fillers.

It is unlikely China is developing aircraft carriers with the intent of employing them against U.S. Navy carrier strike groups in the Central Pacific in a twenty-first-century rehash of the battle of the Philippine Sea.<sup>51</sup> One Shanghai-based military expert states, "Our carrier will definitely not engage with powerful U.S. aircraft carrier fighting groups. But it is enough to be a symbolic threat among neighboring countries like Vietnam, Indonesia, and the Philippines who have territorial disputes with China."<sup>52</sup> Operationally, ski-jump carriers are much less capable than catapult-equipped carriers. In addition to limitations inherent in a rotary-wing AEW platform, fighters operating from ski-jump carriers are limited in the fuel and weapons they can carry and are generally relegated to providing air defense to the battle group rather than acting as offensive weapon systems.

However, this does not mean the PLAN's future aircraft carrier force poses no potential problem for U.S. forces in conflicts in or around China's near seas. In a regional conflict, land-based strike aircraft such as the JH-7A, H-6, J-11B, and Su-30MKK/MK2, as well as conventional ballistic and cruise missiles, could be called on for strikes, negating the need for the carrier's air group itself to project offensive force, in the American style. In this case, a carrier and its air group would complement land-based aircraft, extending situational awareness and air defense in the region. PLA doctrine clearly sees air cover for landing operations in regional conflicts in areas like the South China Sea as one of the primary wartime missions for PLAN aircraft carriers. Both the 2000 and 2006 editions of *Science of Campaigns* discuss the importance of carriers in providing air cover to amphibious invasions of islands and reefs beyond the range of land-based aircraft.<sup>53</sup> The 1998 book *Winning High-Tech Local Wars: Must Reading for Military Officers* states that one or two aircraft carrier groups should protect amphibious forces engaged in long-distance landings stationed 100–150 nautical miles from the shore.<sup>54</sup> While no conflict in the South China Sea is imminent, statements from Beijing asserting China's sovereignty over islands and their surrounding waters, in response to concern in Washington over competing maritime claims, have brought increased international attention to this area of key Chinese national interest.<sup>55</sup> Should the United States find itself involved in a conflict with China in the South China Sea, one or two PLAN carriers in the Spratly Islands providing air cover to landing operations and to surface combatants would complicate the efforts of U.S. forces to achieve air and sea superiority in the battle space.

Further, while future PLAN carriers might not provide much in the way of offensive strike potential against U.S. carrier groups, they could still play a key role in bringing combat power to bear. Admiral Liu Huaqing provided a specific geographic definition for Near Seas Defense, but some PLAN officers view it as an evolving concept that now extends farther out into the Pacific Ocean, as the PLAN's ability to operate its forces with "the requisite amount of support and security" increases.<sup>56</sup> As Rear Admiral Zhang Zhaozhang stated in April 2009,

The Chinese navy does not need to fight in the Atlantic Ocean, the Indian Ocean or at the center of the Pacific Ocean. The Chinese navy follows a proactive defense strategy. However, in order to defend the security of the national territory, marine territories, and the waters within the First Island Chain, this proactive defense strategy does not mean that our navy only stays within the First Island Chain. Only when the Chinese navy goes beyond the First Island Chain, will China be able to expand its strategic depth of security for its marine territories.<sup>57</sup>

Near Seas Defense is about more than operations within the First Island Chain. If China's near seas are to be truly secure, the reach of the PLA's aerospace

forces must extend beyond it, must be able to engage hostile forces as far out to sea as possible. While *Air Raid and Anti-Air Raid in the 21st Century* does not specifically call for employment of aircraft carriers in a counterstrike role, it does envision fighter units providing air cover to surface ships and the surface ships, in turn, attacking aircraft carriers.<sup>58</sup> Even China's most modern land-based fighter aircraft cannot provide persistent air cover beyond the First Island Chain, but an aircraft carrier employed in support of counterstrike operations could provide air and antisubmarine (ASW) protection to surface ships in order to get them within weapons range of a U.S. carrier group.

### SIGNIFICANT WEAKNESSES

The modernization of China's aerospace forces—with an array of advanced fighter, bomber, and strike aircraft, conventional ballistic and cruise missiles, and an aircraft carrier program—is impressive and should be taken seriously. But in less glamorous programs the PLA's aerospace forces experience significant shortfalls that impede their ability to conduct comprehensive counterstrike operations. Such capability gaps affect maritime helicopters, land-based maritime patrol and ASW aircraft, and airborne tankers.

Naval helicopters arguably constitute the single most glaring weakness within the PLAN today. The navy employs a mix of helicopters for ASW, search and rescue (SAR), and general utility; it has found them invaluable in counterpiracy operations in the Gulf of Aden. However, the PLAN's current rotary-wing fleet is wholly inadequate to support its force structure now, let alone in the future. The PLAN now operates between thirty and thirty-five frigates and destroyers equipped with landing pads and hangars. Other ships equipped with helicopter facilities include the aviation-training ship *Shichang*, the two Type 071 LPDs (amphibious transport docks) and their sister ships under construction, the Type 920 hospital ship, and the navy's three most modern at-sea-replenishment ships.<sup>59</sup> The PLAN's inventory of helicopters is approximately thirty-five. Only about twenty—the domestically produced Z-9s and Russian-made Ka-28s that perform ASW and SAR—are capable of operating from destroyers and frigates, though there is deck and hangar space for thirty or thirty-five. Additionally, about fifteen medium-sized Z-8s are capable of operating from larger ships, such as the LPDs and the hospital ship.<sup>60</sup>

This situation will only get worse as the PLAN adds more helicopter-capable surface ships to the fleet. Aside from the carrier program, a second LPD recently joined the fleet; also, the press reports that China plans to develop the Type 081 helicopter assault ship (LHD), similar in size and capability to the French *Mistral*-class LHD, approximately half the size of a U.S. Navy *Wasp*-class LHD.<sup>61</sup> The PLAN's most modern frigate and destroyer classes, such as the Jiangkai II

guided-missile frigate and the Luyang II guided-missile destroyer, have helicopter facilities and are replacing older ships that cannot operate rotary-wing aircraft.

The PLAN, accordingly, needs to add a substantial number of rotary-wing aircraft. This will likely be accomplished in the near term through the purchase of additional Ka-28s from Russia and production of additional Z-9s and Z-8s.<sup>62</sup> However, these solutions are not optimal, as China prefers domestic weapon systems to foreign purchases, the Z-9 is limited in capability owing to its small size, and the Z-8 suffers from engine problems. A potential future solution is a militarized variant of the Z-15, China's coproduced variant of the Eurocopter EC-175. However, the basic commercial variant of this platform is not expected to begin production until 2012; specialized military variants will thus not see production for several years at least.<sup>63</sup> The acquisition of new platforms and the organizing, training, and equipping of an expanded rotary-wing force will take a significant amount of time and effort.

Another weakness for PLA aerospace forces in the near seas is in special-mission aircraft, where a shortage of modern platforms and small overall numbers create significant capabilities gaps in maritime patrol and ASW. The PLAN operates a small number of patrol and AEW aircraft based on the four-engine turboprop Y-8 airframe, as well as a few SH-5 amphibious patrol aircraft.<sup>64</sup> All were acquired in the 1980s and 1990s, and, while serviceable, none are up to Western standards. It appears that the PLAN is taking delivery of a small number of Y-8W/KJ-200 AWACS (airborne warning and control system) aircraft. The addition of the modern KJ-200 will add to the navy's maritime surveillance capabilities, improving the ability of its fighters and strike aircraft to operate far out over water.<sup>65</sup>

Also, the PLAN does not now possess a land-based fixed-wing ASW capability at all. Given that absence and insufficient numbers of helicopters, ASW represents a significant weakness for the ability of the PLAN and China's aerospace forces in general to defend China's near seas. The problem is particularly acute as the PLAN seeks to expand its near-seas defensive operations into deep waters beyond the First Island Chain into the Philippine Sea and the southern part of the South China Sea, where its forces could find themselves vulnerable to hostile submarines in wartime. Internet reports claim the PLAN is developing the Y-8Q, an ASW aircraft similar to the U.S. P-3C, but (assuming this program exists) it will take several years for even a small number of airframes to become operational.<sup>66</sup>

The PLA's aerospace forces also suffer from a shortage of airborne tankers. The PLAAF now only possesses about ten tankers, based on the H-6 bomber, and the PLAN only three.<sup>67</sup> While the PLAAF's and PLAN's J-8II and J-10 fighters are capable of refueling from the H-6 tanker, and fighter units equipped with refueling booms conduct over-water aerial-refueling exercises, the small number of tankers and the limited capacity of the H-6 make this of limited value.<sup>68</sup> Using PLAAF

and PLAN tankers to give fighter aircraft added range would enhance the overall capability of a strike package in a specific tactical situation, but in practice the overall ability of the PLAAF and PLAN fighter forces to contribute to the expansion of China's strategic depth beyond the First Island Chain is constrained by an insufficiency of airframes. Making matters worse, a 2005 contract with Russia for between four and eight Il-78 tankers (along with some thirty-four Il-76 cargo aircraft) has not materialized, although rumors persist that it could be renegotiated.<sup>69</sup> Also, China's aircraft industry is not now producing an airframe suitable for conversion to aerial refueling. The failure to procure or develop such larger tanker aircraft means that China's Flanker-variant fighters cannot be refueled in the air, significantly limiting their usefulness.

As the PLA continues to modernize its forces and develop its counterstrike doctrine, its ability to expand its operations in support of China's Near Seas Defense strategy will increase. A significant element of this growing counterstrike capability resides in the aerospace forces of the PLAN, PLAAF, and Second Artillery. With an increasingly capable inventory of fighter and strike aircraft, conventional ballistic missiles, ground- and air-launched cruise missiles, and eventually aircraft carriers, the ability of the PLA's aerospace forces to threaten U.S. naval and air forces and bases in the western and Central Pacific will grow. Additionally, aerospace systems not discussed here, such as unmanned aerial vehicles and satellites, also have important roles in the development and growth of the PLA's counterstrike forces. However, the PLA is not without its weaknesses in this area. A shortage of antisubmarine helicopters and fixed-wing ASW aircraft is a serious impediment to the PLAN's ability to operate in deep water. The lack of airborne tankers limits the capacity of air force and navy fighter aircraft to sustain operations beyond the First Island Chain and in the southern part of the South China Sea. Finally, dominated as it is by what some officers call the "great infantry" concept, the PLA is inhibited in its ability to integrate its counterstrike capabilities into a joint force that is greater than the sum of its parts. While the PLA's capacity to extend its strategic depth in the conduct of near-seas defensive operations is impressive and has grown significantly over the past decade, weaknesses and capabilities gaps still exist, and these will continue to limit China's ability to defend its near seas.

## NOTES

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